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(54) Title: PROCESS FOR THE PRODUCTION OF ASYMMETRIC TRANSFORMATION CATALYSTS



(A)

(57) Abstract: The present invention relates to process for the production of chiral ligands comprising providing a starting material of Formula (A): wherein X\* is a chiral or achiral directing group; and (i) is an optionally substituted mono- or polycyclic aryl or cycloalkyl group; ortholithiating the substrate; converting the ortho-lithiated substrate to a phosphine group having the formula -PR<sup>1</sup>R<sup>1</sup>, R<sup>1</sup> being selected from substituted and unsubstituted, branched- and straight-chain alkyl, substituted and unsubstituted cycloalkyl, substituted and unsubstituted carbocyclic aryl, and substituted and unsubstituted heteroaryl wherein the or each heteroatom is independently selected from sulphur, nitrogen, and oxygen, R<sup>1</sup> being different from R<sup>1</sup> and being selected from substituted and unsubstituted, branched- and straight-chain alkyl, substituted and unsubstituted cycloalkyl, substituted and unsubstituted carbocyclic aryl, and substituted and unsubstituted heteroaryl wherein the or each heteroatom is independently selected from sulphur, nitrogen, and oxygen; and optionally or if necessary converting X\* to a different grouping to produce a chiral ligand.